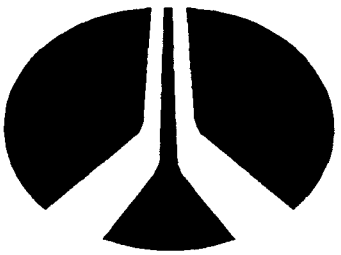
NOTICE

All drawings located at the end of the document.

INTERIM STATUS
CLOSURE PLAN
BUILDING 460 ACID DUMPSTERS
BUILDING 460 SOLVENT DUMPSTERS

U.S. DEPARTMENT OF ENERGY
ROCKY FLATS PLANT
GOLDEN, COLORADO
OCTOBER 3, 1988



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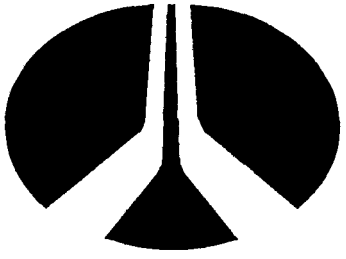

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INTRODUCTION

1.0 INTRODUCTION

This interim status closure plan is being submitted for the decommissioning and decontamination of the building 460 acid and solvent dumpsters in compliance with Colorado hazardous Waste Regulations under CHWR 264, Subpart G, Closure and Post-Closure, Section 264.178, Subpart I, Containers, and Federal regulations contained in CFR 265. This plan is in accordance with the Compliance Agreement between the Colorado Department of Health (CDH), the U.S. Environmental Protection Agency (EPA), and the U.S. Department of Energy (DOE).

After closure the Building 460 acid and solvent dumpsters will be deleted from the Rocky Flats Plant Resource Conservation and Recovery Act (RCRA) Part B Permit Application for Low Level and mixed waste, and this interim status closure plan will be appended to the Post-closure Care Permit.

1.1 ROCKY FLATS PLANT LOCATION, DESCRIPTION, MISSION, AND HISTORY

The U.S. Department of Energy's Rocky Flats Plant is located in north central Colorado, northwest of the City of Denver (Figure 1-1). The Plant is located in Sections 1 through 4 and 9 through 15 of T. 2 S., R. 70 W. The facility's EPA identification number is CO7890010526. The mailing address is:

U.S. Department of Energy
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402

Revision: 0
Date October 3, 1988

The facility contact is:

Albert E. Whiteman, Area Manager
Phone: (303) 966-2025

The facility covers approximately 6,550 acres of federally owned land in northern Jefferson County, Colorado, which is centered at 105° 11′ 30" west longitude, 39° 53′ 30" north latitude.

Rocky Flats Plant occupies nearly 11 square miles of a geological bench, known locally as Rocky Flats. The Rocky Flats are approximately 5 miles wide and flanks the eastern edge of the Rocky Mountain foothills. The plant site (elevation 6000 feet) lies 16 miles northwest of Denver (elevation 5280 feet), with the nearest communities (9-12 miles) including Arvada, Broomfield, Boulder, and Golden. State Highway 128 represents the northern boundary and Jefferson County Highway 17 comprises the eastern boundary (Figure 1-1) Access to the plant is via an east access road (off JCH-17) and a west access road (off CO-93).

Rocky Flats Plant was constructed in the 1950's and operated under the U.S. Atomic Energy Commission until in 1975 when the Energy Research and Development Administration (ERDA) assumed responsibility for Plant operations. In 1977 the U.S. Department of Energy (DOE) was created and assumed responsibility for plant operations.

The original facility covered an area of approximately 2,520 acres. A buffer zone was added in 1974-1975 to enlarge the plant to its present size of approximately 6,550 acres. Access to the buffer zone is restricted, however. This area has been used historically for cattle and hard grazing. Two office buildings, a warehouse, firebreaks, holding ponds along three watercourses,

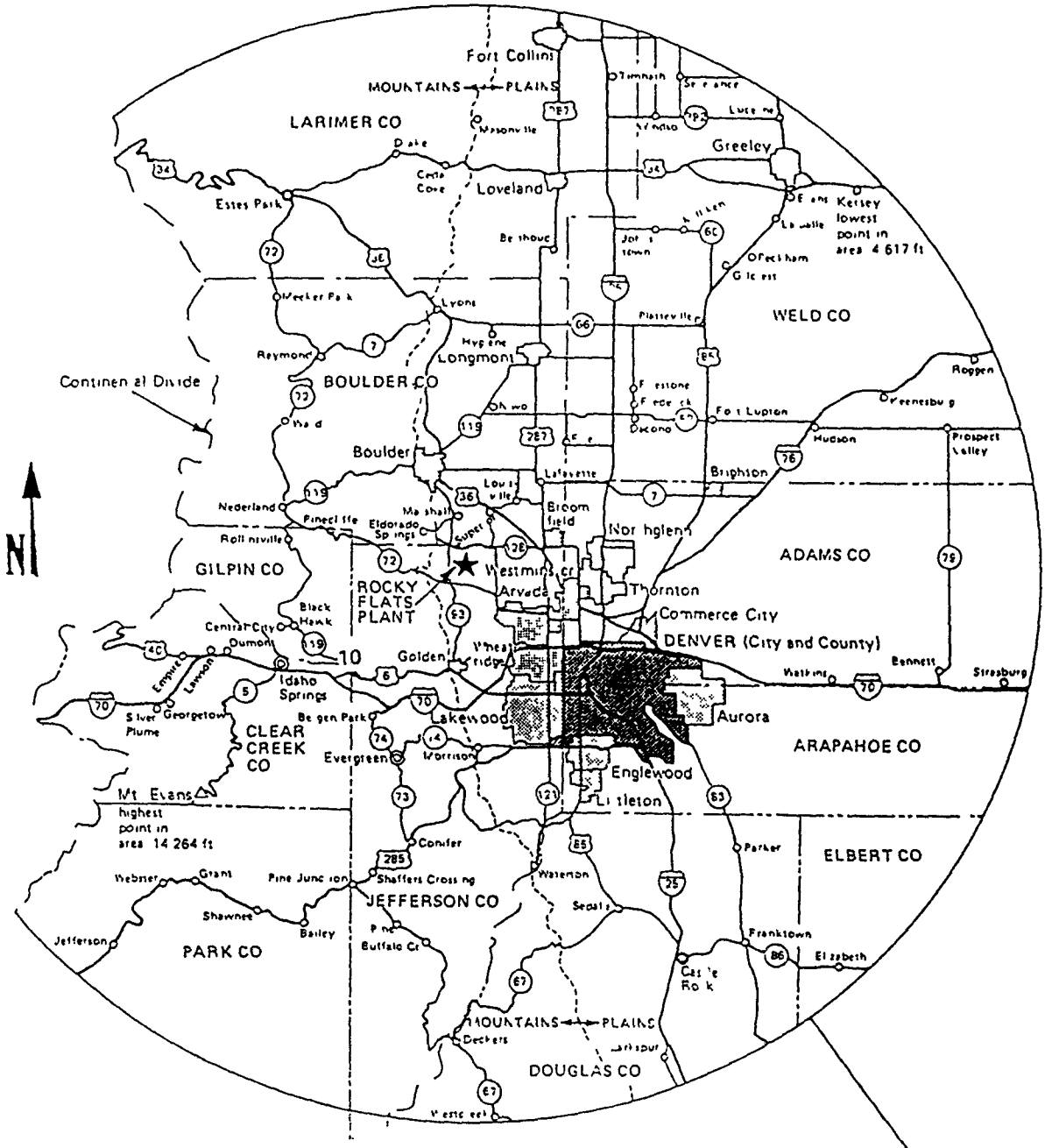


FIGURE 1-1

ROCKY FLATS

SITE VICINITY MAP

environmental monitoring instrumentation, a sanitary landfill area, a salvage yard, power lines, inactive gravel pits, clay pits and two target ranges are located in the buffer zone. Additionally, a former wind energy test site and a Ground Wave Emergency Network tower being installed by the U.S. Air Force are also located in the buffer zone. Major facility structures are located within a 400-acre controlled area near the center of the Plant. Production, research and development facilities at the Plant are located in the controlled area which contains approximately 134 structures with a combined floor space of approximately 2.67 million square feet.

From 1951 until June 1975, the prime operating contractor for the facility was Dow Chemical U.S.A., a unit of the Dow Chemical Company. Rockwell International has been the prime operating contractor for Rocky Flats Plant since June 1975 and is under the general direction of the DOE Albuquerque Operations Office. As a government-owned and contractor-operated facility, Rocky Flats Plant comprises a portion of the nationwide nuclear weapons production complex.

The primary Plant mission is to produce plutonium components for nuclear weapons. Plutonium, uranium, beryllium, and stainless steel parts are fabricated here and shipped off-site for final assembly. Additional activities include chemical processing to recover plutonium from scrap material, metallurgical research and development, machining, assembly, non-destructive testing, coatings, remote engineering, chemistry, and physics.

Waste handling operations at the Rocky Flats Plant include storage, transport, treatment, and packaging of waste materials generated on-site. The waste forms that are handled include hazardous chemical waste, radioactive mixed waste, low level

radioactive waste, transuranic waste, and non-hazardous, non-radioactive waste. A variety of containers and tanks are used to treat or store hazardous wastes. The acid and solvent dumpsters associated with Building 460 are the subject for interim status closure plan. These dumpsters are attached to the building process waste lines by quick-connect couplings which are movable, and are therefore are classified as containers instead of tanks.

1.2 DESCRIPTION OF BUILDING 460 AND THE DUMPSTERS

1.2.1 Introduction

Building 460, the Consolidated Non-Nuclear Manufacturing Building, occupies the southwest corner of the Third Street and Cottonwood Avenue intersection (Figure 1-2). Twenty-five major functions/operations are present in Building 460 and include:

- Electric Discharge Machining
- Copper Cleaning
- Acid Cleaning-Automated Line
- Acid Cleaning-Internal Line
- Electro-Chemical Machining
- Aqueous Cleaning
- Inspection
- R and D Lab
- Final Step-Cleaning
- Nondestructive Testing
- Machinery
- Assembly Machining
- Hardware Machining
- Assembly
- R and D Shop
- Maintenance Machine Shop

- Maintenance Paint Shop
- Maintenance Paint Shop
- Maintenance Pipe Shop
- Crush Grinding Operation
- Maintenance Sheet Metal Shop
- Maintenance Carpenter Shop
- Lube Oil Storage
- Production Test Cells
- Metallography Lab

1.2.2 Dumpster Location

The dumpsters (portable cylindrical vessels) are located outside Building 460 along the southeast corner of the building. Figure 1-2 shows their location. These 460 dumpsters had been operated as interim status units in the 1986/1987 time frame, and were identified in the November 1986 RCRA Part A and Part B permit applications. Due to changes in procedures and waste generation activities, the solvent waste is no longer generated and the solvent dumpsters are out of use. The acid dumpsters are still in use, but as a 90 day accumulation area rather than an interim status unit. These changes away from interim status were reflected in the Revised RCRA Part A and Part B Permits submitted to CDH and EPA on December 15, 1987. Interim status usage of the Dumpsters ceased on March 24, 1988

The acid and solvent systems operate in a similar manner to each other. Lines run from the waste generators to a sump or holding tank (the acid sump is located in room 156 B and the solvent holding tank is located in room 157), after which lines run from these holding tanks through the concrete wall to the dumpsters, where they are attached by quick connect couplings to the dumpsters.

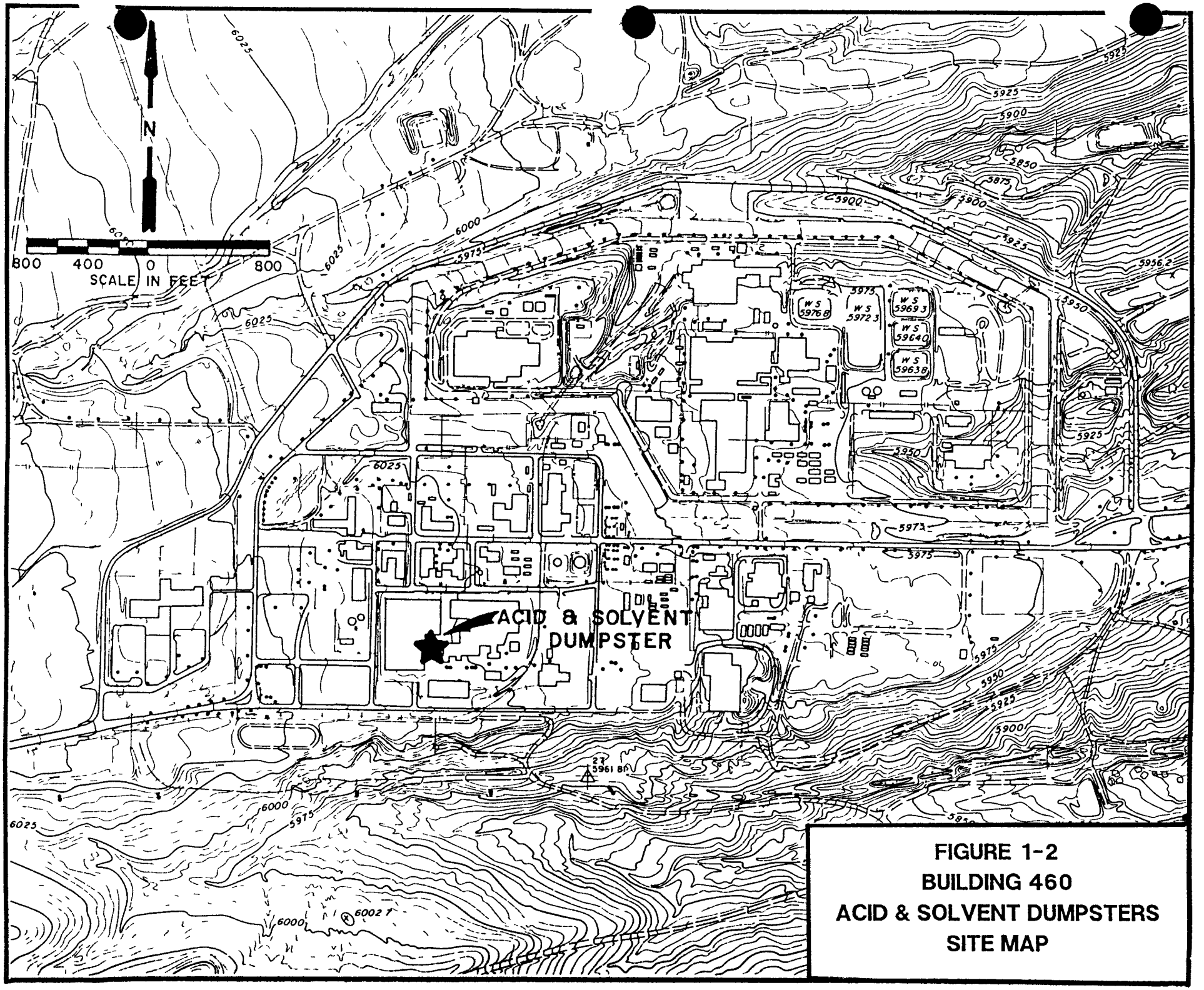


FIGURE 1-2
BUILDING 460
ACID & SOLVENT DUMPSTERS
SITE MAP

1.2.3 Dumpster Type and Size

The dumpsters are a pair of 3/16-inch thick, 304L stainless steel, 250-gallon, unlined dumpsters/portable cylindrical vessels (30 inches by 88 inches) which receive solvent wastes from process operations in Building 460. Another pair of 3/16-inch, thick 394L stainless steel, 250-gallon cylinders, lined with Kynar polyvinyledine fluoride (as specified by SM-122, Section 6, ASME) receive the acid wastes. Each dumpster contains an 18-inch diameter manhole on the top and a 1-inch diameter drain fitted with a ball-valve in the bottom. The paired dumpsters are used in a manner such that one dumpster of the pair can receive wastes while the other dumpster is being emptied. Figure 1-3 shows the detail of dumpster construction. Design and fabrication is per specifications for ASME Code Stamped Vessels. As per 6CCR 1007-3, Part 260.10 and 40 CFR 260.10, these dumpsters are containers.

1.2.4 Total Storage Capacity

The acid dumpsters have a storage capacity of 250-gallons each or a combined total of 500 gallons, however, they are used one at a time. Therefore, the capacity for storage is normally somewhat less than 250 gallons. An additional small amount of storage is available in an acid sump, a fiberglass tank located inside Building 460 (Room 156 B) where acid wastes are transferred to the acid waste dumpsters through permanent piping.

The solvent dumpsters have a storage capacity of 250-gallons each or a combined total of 500 gallons, however, they are used one at a time. Therefore, the capacity for storage is normally somewhat less than 250 gallons. An additional small amount of storage is available in a 15-gallon holding tank, located inside Building

460 (Room 157) where solvent wastes are transferred to the waste solvent dumpsters through permanent piping.

1.2.5 Wastes Stored in the Dumpsters

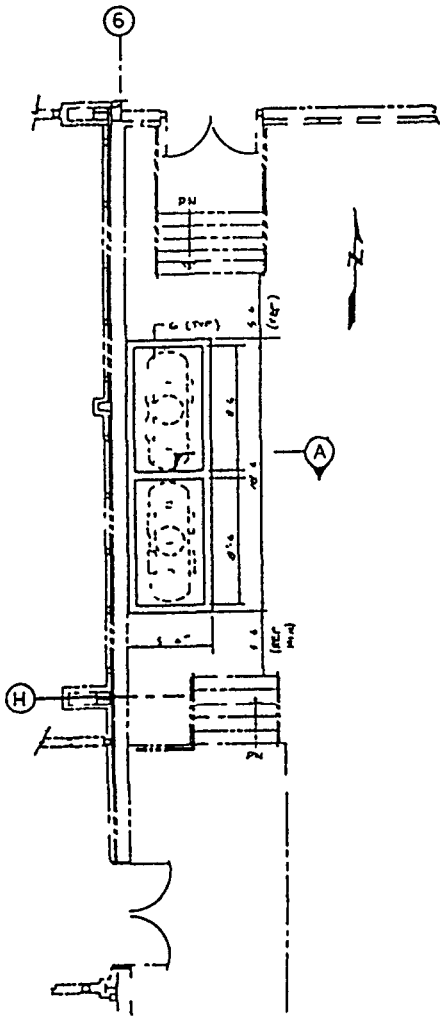
Nitric acid, Nitradd (hydrofluoric acid and ammonium salts) and water comprise the majority of acid dumpster contents. The mixture is approximately 80% water and 20% acid (Rockwell International, 1988). A composite of 1,1,1 trichloroethane, freon TF, and methylene chloride comprise a majority of the wastes from Building 460 that are transferred to the solvent dumpsters. The mixture is approximately 60% freon TF, 30% 1,1,1 trichloroethane, and 10% methylene chloride and other solvents (Rockwell International, 1988).

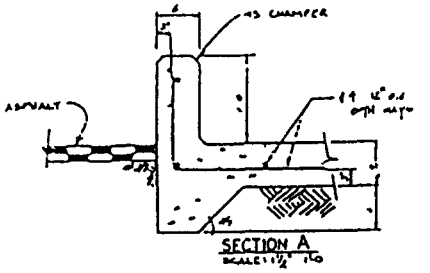
1.2.6 Monitoring and Containment Systems

A level sensor is mounted in a 2-1/2 inch diameter stainless steel pipe near the end of each dumpster (Figure 1-3). An up to the minute log of the volume in the tank is maintained and visually checked with the sensor weekly to determine when dumpster changeover was necessary, generally when the liquid level reached about one foot from the top of the dumpster.

The dumpsters are contained within a concrete-bermed area, with a concrete divider separating each dumpster (Figure 1-4). Each bermed area measures 4 feet 6 1/2 inches wide by 8 feet 6 inches long and 12 inches deep. Each bermed area has 286 gallon capacity.

The containment areas cannot be drained into one another, e.g., each area represents a distinct basin separated by the dividing berm(s). Each basin, however, can be partially drained to the





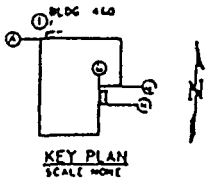


FIGURE 1-4
BERM DETAIL
OF THE
BUILDING 460
ACID AND SOLVENT
DUMPSTERS

area outside of containment through a drain hole located 1 1/2 inches above the basin floor. All drain holes are plugged.

1.2.7 Releases from Dumpsters and Containment Areas

The 15-gallon solvent waste holding tank is located inside Building 460 (Room 157) and represents the staging area to the solvent dumpsters or drums. Manual transfer of waste solvents from the holding tank to drums could result in releases, although no releases have been reported. Staining was observed on the floor under/near the solvent waste holding tank. No releases of acids are known. No releases occurred during pumped transfer, which represents the normal method to transfer waste solvents from the holding tank to the dumpsters.

The acid and solvent dumpsters are 3 to 5 years old and the secondary containment was constructed simultaneously with dumpster introduction. The containment was intact during the operational life of the dumpsters, but the berm for one solvent dumpster was broken in late May, 1988 and has since been repaired (Rockwell International, 1988).

No cracks are present in the concrete containment pad under both acid and solvent dumpsters, and no spills from the dumpsters have ever escaped the secondary containment system. No stains from dumpster spillage are present. Stain from rainwater and snowmelt accumulation, however, is present.

1.2.8 Lines from the Dumpsters

The acid dumpsters are connected to an acid sump (a fiberglass tank in the wall of Building 460) with quick-disconnects to facilitate exchanging dumpsters. A pump transfers waste acids

from the sump through a dedicated pipe system to the acid waste dumpster. The acid sump is connected to the Building 460 dedicated drainage system (exclusively acids).

The solvent dumpsters are connected to a 15-gallon holding tank located inside Building 460 through permanent piping with quick-disconnects to facilitate exchanging dumpsters. The solvent holding tank is connected to the Building 460 dedicated drainage system (exclusively solvents).

When it is necessary to empty one of the dumpsters, it is either transported by the Trucking group directly to Building 374 or 774, or moved by forklift to an adjacent, bermed location for transfer to drums. Acid wastes are transferred from the dumpsters to steel drums with poly liners, using a 1/2 hp pump and 1-inch diameter Tygon tubing. Solvent wastes are also transferred from the dumpsters to unlined steel drums using a 1/2 hp pump and 1-inch diameter Tygon tubing. Filled acid or solvent drums are then stored in the Building 460 Drum Storage Area.

1.2.9 Geologic Setting

Geologic materials in the vicinity of Building 460 consist of Rocky Flats Alluvium, colluvium and Arapahoe Formation deposits (Figure 1-5). The Rocky Flats Alluvium consists of poorly to moderately sorted clay, silt, sand, gravel and cobbles which were deposited in a series of laterally coalescing alluvial fans (Hurr, 1976). The thickness of the alluvium is variable due to deposition on an erosional surface and recent erosional processes.

Colluvial materials consisting predominantly of clay with common occurrences of sandy clay and gravel layers are present on the

surface of the North Walnut Creek drainage. These materials were deposited by slope wash and downslope creep of Rocky Flats Alluvium and claystone bedrock. The thickness of the colluvium is not known in the vicinity of Building 460. Groundwater in the Rocky Flats Alluvium and other surficial materials on the plant site occur under unconfined conditions. This shallow ground-water flow system is quite dynamic with average depths to water ranging from four to 14 feet below the ground surface. Ground-water flow generally follows the topography and is also governed by the configuration of the top of bedrock beneath the surficial materials. Generally, the shallow ground-water flow system direction is eastward from the plant.

The Arapahoe Formation consists of fluvial claystones with interbedded sandstones and siltstones. Weathering has penetrated to depths ranging from 10 to 40 feet below the base of the surficial deposits. Most of the ground-water flow in the Arapahoe Formation occurs in these lenticular sandstones. Ground water in the sandstone units generally flows to the east toward the point of regional discharge along the South Platte River (Robson, 1981).

1.3 MAXIMUM EXTENT OF OPERATION

A closure plan must "identify the maximum extent of the operation which will be unclosed during the life of the facility" [40 CFR 265.112(a)(1)]. The estimate must be high enough to ensure that if an inspector came onto the facility, none of the conditions observed would exceed those stated in the plan.

The four dumpsters occupy a containment area of approximately 132 square feet outside Building 460. An additional 40 square feet

is considered to allow for the area occupied by transfer lines, the holding tank, and the acid sump.

1.4 DESCRIPTION OF AUXILIARY EQUIPMENT

Identifiable auxiliary equipment present at the acid and solvent waste dumpster area includes a 1/2 hp pump and 1-inch diameter Tygon tubing, used to transfer dumpster wastes to 55-gallon drums. The 15-gallon holding tank for solvent wastes and the acid sump are not considered auxiliary equipment because they are integral to waste transfer from Building 460 to the dumpsters.

1.5 INTERIM STATUS CLOSURE PLAN SUMMARY

1.5.1 Interim Status Closure Objectives

This interim status closure plan has been prepared to meet the performance standards of 6 CCR 1007-3, Section 265.111. The promulgated standards require a facility must be closed in a manner that:

- minimizes the need for further maintenance, and
- controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

1.5.2 Interim Status Closure Plan

Currently, it is believed that a clean closure of all four dumpsters; associated lines, sump, and holding tank; and the concrete containment areas can be implemented without the removal of soil. No impacts on ground-water quality would be expected to occur because the bermed area would capture and hold spillage. In addition, the small amount of potential spillage would be insufficient to migrate through the concrete into the ground-water system.

If decontamination of the concrete (described in Section 3.0) in the holding tank vicinity and containment areas is shown to be ineffective, a revised closure plan will be prepared and submitted to the Colorado Department of Health (CDH) for approval, within 30 days of making that determination. The effectiveness of concrete decontamination will be evaluated by sampling and analyzing the rinse water used during cleaning the concrete, as described in Section 3.2.5.

1.5.3 Interim Status Closure Schedule

As illustrated on Figure 1-6, the dumpsters, holding tank, sump, lines and concrete floors (containment areas) will be decontaminated within 60 days after CDH approval. Analyses and reporting of the final rinse solution used in the decontamination process is anticipated to take three months and will be conducted from 60 to 150 days after closure plan approval. Assuming the concrete is shown to be sufficiently clean after one decontamination, closure will be certified between 150 to 180 days after closure plan approval. If the analysis of the final rinse solution indicates contamination is still present, the

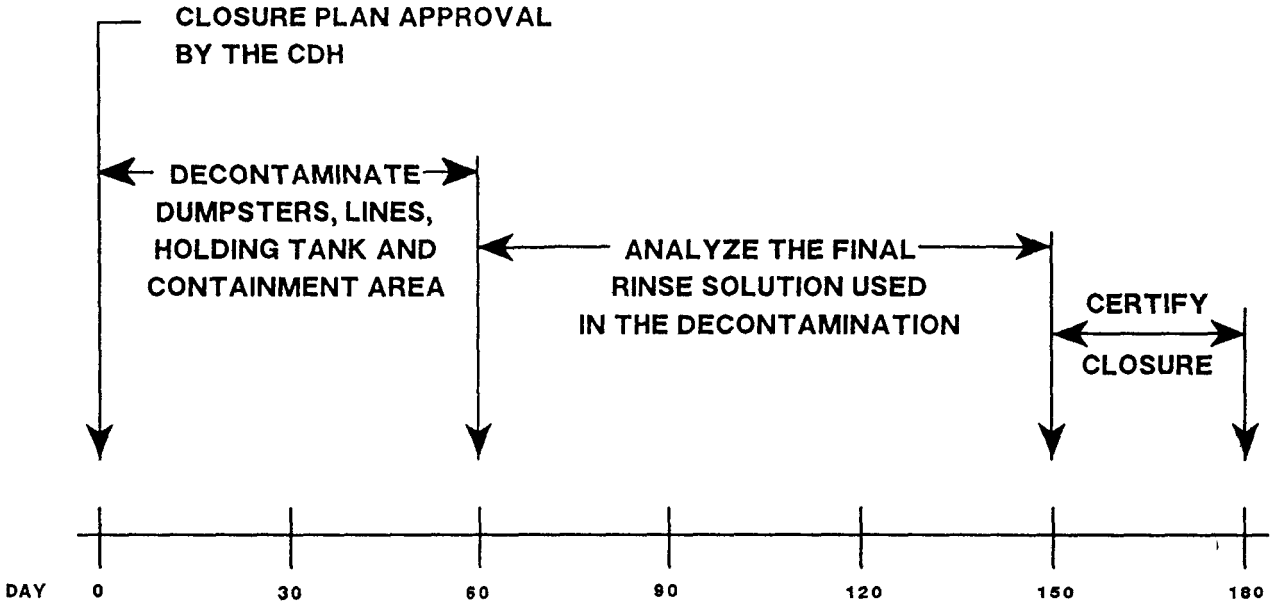


FIGURE 1-6

SCHEDULE OF CLOSURE ACTIVITIES

FOR THE

BUILDING 460

ACID AND SOLVENT DUMPSTER AREA

1.6 ADMINISTRATION OF INTERIM STATUS CLOSURE PLAN

The interim status closure plan for the Building 460 acid and solvent dumpsters will be maintained at the Rocky Flats Area Office, Building 111, U.S. Department of Energy. The person responsible for storing and updating this copy of the closure plan is:

Mr. Albert E. Whiteman
Area Manager

Mr. Whiteman's address and phone number are:

U.S. Department of Energy
Rocky Flats Plant
P.O. Box 928
Golden, Colorado 80402
Phone: (303) 966-2025

Mr. Whiteman is also responsible for updating other copies of interim status closure plan held off-site by sending additions or revisions by registered mail.

1.7 CLOSURE COST ESTIMATES AND FINANCIAL ASSURANCE

State and Federal governments are exempt from the financial requirements imposed by Subpart H of 6 CCR 1007-3, Section 264.140 (c). Because the Rocky Flats Plant is a federally-owned facility, no cost estimates or financial assurance documentation are required. However, cost estimates are presented for planning, budgeting and informational purposes. The cost estimate for areas with possible soil contamination are presented

on Table 1-1. The cost estimate for areas with possible concrete contamination are discussed below. These estimates can in no way be considered binding.

The estimates presented on Table 1-1 are based on a worst case scenario in which the entire outdoor unit undergoing closure is found to be contaminated to a depth of 13 inches, but that excavation to a depth of 18 inches will be conducted to insure all contamination is removed. These assumptions are expected to result in an overestimation of the actual costs that will be incurred since these areas are expected to be clean and require no soil removal.

TABLE 1-1

COST ESTIMATES FOR DUMPSTER AREAS

Building 460 Acid Dumpster

Engineering Design and Inspection		$ 8,000
Equipment		6,170
Removal		2,040
Decontamination and Monitoring		9,440
Disposal		3,400
Contingency		5,810
	Subtotal	$ 34,860

Building 460 Solvent Dumpster

Engineering Design and Inspection		$ 8,000
Equipment		6,170
Removal		2,040
Decontamination and Monitoring		9,440
Disposal		3,400
Contingency		5,810
	Subtotal	$ 34,860

Total of Acid and Solvent Dumpster Facility Decontamination/Removal and Disposal $ 69,720

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REMOVAL, TREATMENT AND WASTE DISPOSAL FROM THE DUMPSTERS, HOLDING TANK, SUMP AND LINES

2.0 REMOVAL, TREATMENT AND WASTE DISPOSAL FROM THE DUMPSTERS, HOLDING TANK, SUMP AND LINES

2.1 INTRODUCTION

The acid and solvent dumpsters, holding tank, sump, and lines contain wastes as characterized in Section 2.3.1. These wastes will be disposed as described in Section 2.3.2. Following waste removal the dumpsters will be cleaned using procedures developed for tanks, even though their classification falls under containers (portable). Wastes remaining in the dumpsters, holding tank, sump, lines, and rinsate from decontamination activities will be disposed in accordance with current practices described in Section 3.0.

2.2 MAXIMUM AMOUNT OF REMAINING WASTE

If all containers (dumpsters, holding tank and sump) were full, acid and solvent wastes combined would equal approximately 1030 gallons. However, only one dumpster of each pair is used at a time, therefore the maximum amount of waste present at any time would be somewhat less than 500 gallons.

This volume is regulated by monitoring probes on the dumpsters which indicate when waste levels in the dumpsters reach one-foot from the top of the containers. Changeover and disposal activities occurred when fluid levels reached the probe.

2.3 PROCEDURES FOR HANDLING REMAINING WASTE

2.3.1 Waste Characterization

Acid dumpster waste was approximately 80% water and 20% acid in the form of nitric acid and Nitradd (commercial product consisting of hydrofluoric acid and ammonium salts). Final acid waste volumes to be disposed will be that of acid wastes currently generated. Table 2-1 lists the acid wastes and process waste numbers for the Building 460 acid dumpsters.

Solvent dumpster waste was approximately 60% freon, 30% 1,1,1 trichloroethane, and 10% methylene chloride and other solvents. Final solvent waste volumes to be disposed will be that of solvent wastes remaining in tank. Table 2-1 lists the solvent wastes and process waste numbers for the Building 460 solvent dumpsters.

drums will be placed in storage at the Building 460 Drum Storage Area, prior to transport to the Hazardous Waste Storage Area for off-site disposal or to Buildings 374/774 for treatment.

2.4 SCHEDULE FOR REMAINING WASTE REMOVAL, TREATMENT, AND/OR DISPOSAL

Removal and disposal/treatment of acid and solvent wastes will occur within the 90-day period following receipt of final waste volumes. The receipt of the final volume of waste normally is determined by how a unit interacts and relates to other hazardous or mixed waste management units. Since the dumpsters are currently inactive, closure activities for the Building 460 dumpsters and containment area will be completed during the 180-day closure period.

30
DECONTAMINATION OF THE DUMPSTERS, HOLDING TANK, SUMP, LINES, AND CONTAINMENT AREA

3.0 DECONTAMINATION OF THE DUMPSTERS, HOLDING TANK, SUMP, LINES, AND CONTAINMENT AREA

3.1 INTRODUCTION

A stepwise approach will be used to effect the cleaning or decontamination of the dumpsters and accessory equipment, as follows:

- o PIPES
  - Pipes connecting the process drain to the acid sump will be flushed.
  - Pipes connecting the process drain to the solvent holding tank will be flushed.
- o SUMP and HOLDING TANK
  - Acid sump and pipes between the sump and the acid dumpsters will be decontaminated.
  - Solvent holding tank and pipes between the holding tank and the solvent dumpsters will be decontaminated.
- o DUMPSTERS
  - Acid dumpsters (after emptying) will be decontaminated with a solution of 4 lbs. sodium carbonate, 4 lbs. trisodium phosphate to 10 gallons of water, using a wash/rinse procedure, as per 40 CFR 261.7 and Colorado regulations.
  - Solvent dumpsters (after emptying) will be decontaminated with a solution of 4 lbs. trisodium phosphate and 10 gallons of water, using a wash/rinse

procedure, as per 40 CFR 261.7 and Colorado regulations.

- Secondary containment will be cleaned using a steam/rinse procedure.

3.2.1 Decontamination of Acid Pipes, Sump and Dumpsters

Pipes connecting the process drain to the acid sump will be flushed using the sodium carbonate/trisodium phosphate mixture. The resulting effluent will be transferred through the existing pipe to the acid dumpster. Both the sump and the pipe between the sump and the dumpster will then be cleaned using the above-described solution.

The acid dumpsters will the be cleaned using the sodium carbonate/trisodium phosphate mixture. Following washing, the dumpsters will be rinsed and the rinsate sampled as described in Section 3.2.4. Washdown and rinsate will be removed using a portable vacuum unit, and placed in 55-gallon drums or a tanker truck. The acid dumpsters will be considered decontaminated once these procedures have been implemented. Once verification of this fact is obtained (the results of the rinsate analysis will verify this), the dumpsters will not be considered hazardous waste. Should the rinsate samples fail verification, the decontamination/verification procedure will be repeated.

3.2.2 Decontamination of Solvent Pipes, Holding Tank, and Dumpsters

Pipes connecting the process drain to the solvent holding tank will be flushed using a trisodium phosphate mixture. The

resulting effluent will be transferred through the existing pipe to the solvent dumpster. Both the sump and the pipe between the sump and dumpster will then be cleaned using the trisodium phosphate solution.

The solvent dumpsters will then be cleaned (hydroblasted inside, foam outside) using the trisodium phosphate mixture. Following washing, the dumpsters will be rinsed and the rinsate sampled as described in Section 3.2.4. Washdown and rinsate will be removed using a portable vacuum unit, and placed in 55-gallon drums or a tanker truck. The solvent dumpsters will be considered decontaminated once these procedures have been implemented. Once verification of this fact is obtained (the results of the rinsate analysis will verify this), the dumpsters will not be considered hazardous waste. Should the rinsate samples fail verification, the decontamination/verification procedure will be repeated.

3.2.3 Decontamination of the Secondary Containment Areas

Secondary containment areas will be steam cleaned following dumpster decontamination. Other methods of cleaning considered include hydroblasting, foam, or spalling. A summary of cleaning methods is presented in Section 3.2.

3.2.4 Washdown and Rinsate Volume

A total of approximately 880 gallons of cleaning effluent is expected to be produced, since the dumpsters will be hydroblasted on inside surfaces and foam washed on outside surfaces. The cleaning effluent will be collected in 55-gallon drums, then transported to Building 374 for treatment in the process waste treatment system. Emptied drums will be transferred to Building 889 for steam cleaning.

3.2.5. Source and Rinse Water Sampling and Verification

Rinsate solution will be analyzed to determine decontamination effectiveness for pipes, holding tank, sump, dumpsters, and secondary containment areas. The cleaning water will be sampled then analyzed for all the parameters shown on Table 3-1. These data are used as background levels for evaluating contamination of final rinse water.

Grab samples of the final rinse water will be analyzed for parameters as indicated on Table 3-1. A parameter will be considered above background if the mean of the source is exceeded by three standard deviations. Decontamination will be further verified using surface sampling or wiping. Should background values for a parameter in a rinsate source be less that the detection limit, then used rinse water must be at or below the detection limit for that parameter. Instances in which some samples of the rinsate source are below the detection limit, with other samples above the detection limit, then a value of one-half the detection limit will be used for all analyses less than the detection limit. These rinsate source values will be used in the statistics to develop the mean plus three standard deviations which must be met by the used rinse water. At least two samples of rinse water will be analyzed.

3.2.6 Decontamination Methods

Four standard cleaning methods, e.g., hydroblasting, foam, steam, and spalling are considered at Rocky Flats Plant. Wastes generated while using one or more of these methods will be present in a liquid or aqueous form, in addition to cleaning materials and protective clothing/materials.

A summary of each cleaning method is presented below:

- **Hydroblasting** - A high pressure water jet applies cleaning solutions to concrete and/or steel surfaces,the combination of chemical and mechanical agitation effective in surface decontamination. Some surface erosion may occur; therefore, hydroblasting can also be a method of spalling.

- **Foam** - decontamination agents are suspended in a thick, dry foam and applied to the surfaces to be cleaned. Contaminants acted upon by the decontamination agents are suspended in the foam, which is removed directly by vacuum techniques or rinsing into other containment.

- **Steam** - A high pressure steam or steam/cleaning solution mixture is applied to a surface by hand-held wands. Volumes of condensate and cleaning solution used may be more than 50% less than for hydroblasting. This method is not necessarily appropriate where contaminants may volatilize.

- **Spalling** - A hydroblaster or grinder is used to remove a thin layer of material from the surface of porous materials, e.g., wood, concrete or asphalt.

TABLE 3-1

RINSATE ANALYSIS PARAMETERS FOR THE BUILDING
460 ACID AND SOLVENT DUMPSTERS AND ASSOCIATED PIPING

LOCATION	TYPES OF WASTES	TYPES OF PARAMETERS
ACID PIPES	ACID WASTES (Nitric), NITRADD	pH, NO_3, F
SOLVENT PIPES	TCE, Freon TF Cee Bee 105 HF, TCA, Alcohol, Degreasing	EPA Method 601 for 1,1,1-Trichloroethane, Methylene Chloride and Trichlorofluoromethane
ACID SUMP	ACID WASTES (Nitric), NITRADD	pH, NO_3, F
SOLVENT HOLDING TANK	TCE, Freon TF Cee Bee 105 HF TCA, Alcohol Degreasing	EPA Method 601 for 1,1,1-Trichloroethane, Methylene Chloride and Trichlorofluoromethane
ACID DUMPSTER	ACID WASTES (Nitric) NITRADD	pH, NO_3, F
SOLVENT DUMPSTER	TCE, Freon TF Cee Bee 105 HF TCA, Alcohol, Degreasing	EPA Method 601 for 1,1,1-Trichloroethane, Methylene Chloride and Trichlorofluoromethane

4 0
DECONTAMINATION OF EQUIPTMENT

4.0 DECONTAMINATION OF EQUIPMENT

4.1 INTRODUCTION

As required under 6 CCR 1007-3, Sections 264.112 (b) (4) and 264.114, equipment used to decontaminate concrete and facilities will be decontaminated. In addition, auxiliary equipment at the dumpster site (1/2 HP pump and 1" Tygon tubing) will also be decontaminated. Decontamination will follow the procedures described in Section 4.2.

4.2 DECONTAMINATION PROCEDURES

All washate and rinsate from decontamination will be collected, primarily by vacuum, and placed in 55-gallon drums or a tanker truck. The collected material will initially be handled as a hazardous waste. A representative sample of this effluent will be obtained and analyzed, and the effluent will be handled appropriately based on analytical results. If this waste qualifies as a hazardous waste or a mixed waste, it will be shipped off-site to an approved RCRA treatment or disposal facility or an approved mixed waste disposal facility, respectively.

At the end of all closure activities, all auxiliary and decontamination equipment that came into contact with contaminated washate or rinsate, e.g., pumps, vacuums, steam cleaning units, etc. will be decontaminated in the Building 889 decontamination facility. This facility is currently equipped to decontaminate up to moderately-sized construction equipment. The facility is planned to be enlarged by January, 1989 to accommodate large construction equipment, e.g., tanker trucks.

The decontamination system expected to be used will heat water to approximately 350°F at 250 psig pressure. The super-heated, high-pressure steam will be sprayed on the contaminated surface through a series of nozzles incorporated into the vacuum/spray cleaning head. The exact equipment used for decontamination will vary depending on procurement of capital equipment. The equipment used will provide for adequate decontamination of the cleaning equipment. Rinse water from the facility will be collected in a series of underdrains and transferred to Building 374 for process waste treatment.

5 0
SITE SECURITY

5.0 SITE SECURITY

The existing security measures at the Rocky Flats Plant include:

- A three-strand barbed wire cattle fence surrounding the facility, posted to identify the land as a government reservation/restricted area,

- A fence surrounding, and guards posted 24 hours/day, at two gates to the controlled area of the facility,

- A six-foot high chain link fence topped by two feet of three-strand barbed wire surrounding the perimeter security zone,

- Guards patrolling the controlled area and the perimeter security zone 24 hours/day,

- Surveillance by security cameras 24 hours/day.

The existing security measures are sufficient to meet the requirements of 6 CCR 1007-3, Section 264.14.

The existing fences and gates are operated and maintained by the U.S. Department of Energy. Maintenance requirements will be performed by the U.S. Department of Energy.

6.0
CLOSURE CERTIFICATION

6.0 CLOSURE CERTIFICATION

6.1 CERTIFICATION REQUIREMENTS

Certification of closure requirements is outlined in 6 CCR 1007-3, Section 264.115 and 40 CFR 264.115:

> "When closure is completed, the owner or operator must submit to the (Department of Health/Regional Administrator) certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan."

Certification by a registered professional engineer does not guarantee the adequacy of the closure procedures and does not necessarily involve detailed testing and analyses. It implies that, based on periodic facility inspections, closure has been completed in accordance with the specifications in the approved closure plan (U.S. Environmental Protection Agency, 1981).

6.2 ACTIVITIES REQUIRING INSPECTIONS BY A REGISTERED PROFESSIONAL ENGINEER

An independent registered professional engineer will inspect concrete decontamination activities for certification of closure. The engineer will review the analytical results from the background and rinsate samples to determine when decontamination is complete. The engineer will review the rinse water handling procedures to insure that it is properly contained and disposed of.

6.3 ANTICIPATED SCHEDULE OF INSPECTIONS BY A REGISTERED PROFESSIONAL ENGINEER

An independent registered engineer will periodically review the closure operations listed in Section 6.2 in order that a final certification of closure can be developed which states that the closure has been carried out according to the plan. The engineer will periodically obtain and review the results of chemical testing which provide a record of the progress and effectiveness of the implemented closure plan.

The independent engineer and the owner will, at the end of closure, inspect the site and certify that the closure plan was carried out as described. Prior to final certification, deficiencies noted by the engineer will be corrected. When deficiencies have been corrected, the engineer will issue a written report to the regulatory agencies certifying that the facility has been closed according to this closure.

7 0
REFERENCES

7.0 REFERENCES

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Date

Approved By

Prepared By

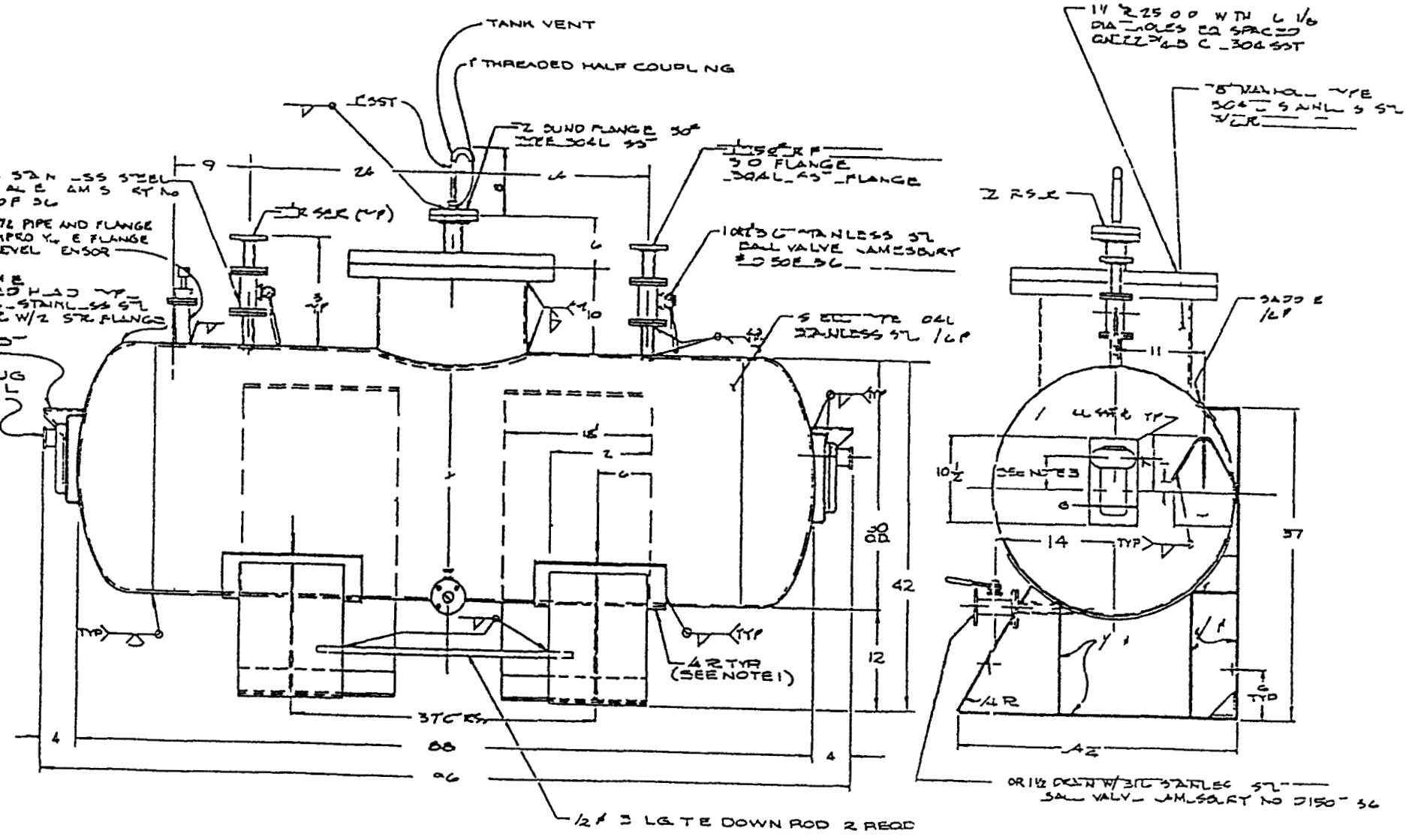
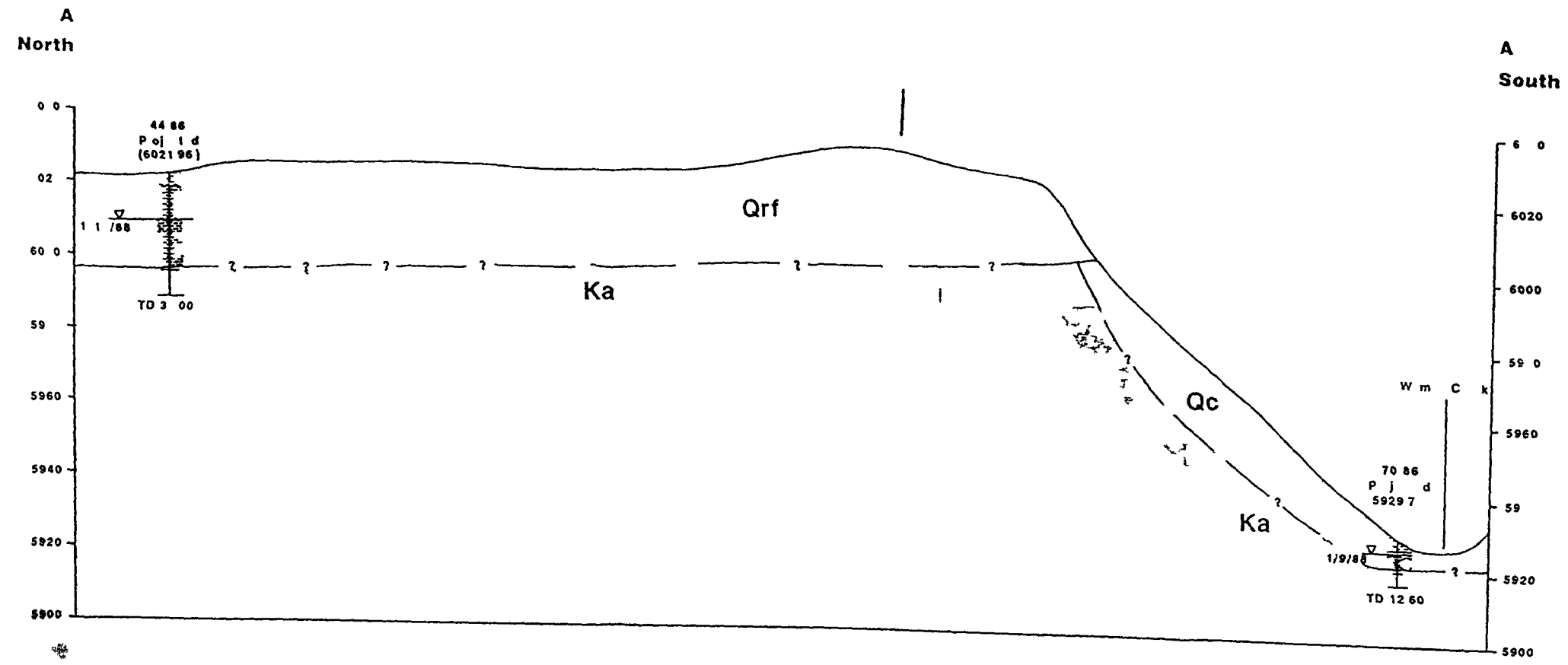


FIGURE 1-3
TANK DETAIL
OF THE
BUILDING 460
ACID AND SOLVENT DUMPSTERS

Date

Approved By

Prepared By



EXPLANATION

2 87/BH3 87 — W ll/B rehol ld tif cation

5930 56 — Gro nd S rface Ele at on (su eyed)

Wat r Level

Geolog c Contact (Q err d wher nferred D hed wher appro m tely l c ted)

Sc e ned Inte al

TD 16 00 — Tot l Depth Dr lled

QUATERNARY

- Qt — Te race
- Qd — D sturbed Gr und
- Qc — Coll um
- Qrf — R cky Flats Allu m
- Qal — All um

CRETACEOUS

- Ka — A ap hoe Format on (Cl ystone)
- Kass — A ap ho F m t n (Sa d to)

- Clay
- Cl yey Sa d or S ndy Cl y
- Cobbl s nd/or Gr el
- S nd d/ Sandstone
- S d a d Gr el
- S lt r S ltst ne
- Clay to

FIGURE 1-5
GENERAL GEOLOGIC CROSS-SECTION
OF THE
BUILDING 460
ACID AND SOLVENT DUMPSTER AREA